**Galprop Descriptions:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Data Type** | **Shape** | **Units** | **Description** |
| GalpropBirthHaloID |  | N | -- | ID of host halo from Haloprop |
| GalpropHaloIndex |  | N | -- | Index of host halo in Haloprop (recommend usage: when loading whole subvolumes) |
| GalpropHaloIndex\_Snapshot |  | N | -- | Index of host halo in Haloprop (recommended usage: when loading snapshots) |
| GalpropMBH |  | N | 109 M☉ | Black hole mass |
| GalpropMH2 |  | N | 109 M☉ | Molecular hydrogen cold gas mass |
| GalpropMHI |  | N | 109 M☉ | Neutral hydrogen cold gas mass |
| GalpropMHII |  | N | 109 M☉ | Singly ionized hydrogen cold gas mass |
| GalpropMaccdot |  | N | M☉ / yr | accretion rate onto black hole |
| GalpropMaccdot\_radio |  | N | M☉ / yr | accretion rate onto black hole in radio mode |
| GalpropMbulge |  | N | 109 M☉ | Stellar mass of the bulge |
| GalpropMcold |  | N | 109 M☉ | Total cold gas mass |
| GalpropMvir |  | N | 109 M☉ | Total dark matter halo mass |
| GalpropMstar |  | N | 109 M☉ | Total stellar mass |
| GalpropMstar\_merge |  | N | 109 M☉ | Stellar mass entering via mergers |
| GalpropMstrip |  | N | 109 M☉ | Stripped mass of DM sub-halo |
| GalpropMu\_merger |  | N | -- | mass ratio of last merger (see S08) |
| GalpropOutflowRate\_Mass |  | N | M☉ / yr | rate of outflowing gas from ISM |
| GalpropOutflowRate\_Metal |  | N | M☉ / yr | rate of outflowing metals from ISM |
| GalpropPos |  | N, 3 | cMpc | x, y, and z coordinates |
| GalpropRbulge |  | N | kpc | 3D half-mass Radius of bulge |
| GalpropRdisk |  | N | kpc | 3D half-mass Radius of disk |
| GalpropRedshift |  | N | -- | redshift |
| GalpropRfric |  | N | Mpc | distance from halo center |
| GalpropRhalo |  | N | Mpc | halo virial radius |
| GalpropRootHaloID |  | N | -- | ID of root halo at z = 0 from Haloprop |
| GalpropSatType |  | N | -- | 0 = central |
| GalpropSfr |  | N | M☉ / yr | instantaneous SFR |
| GalpropSfrave100myr |  | N | M☉ / yr | SFR averaged over 100 Myr |
| GalpropSfrave1gyr |  | N | M☉ / yr | SFR averaged over 1 Gyr |
| GalpropSfrave20myr |  | N | M☉ / yr | SFR averaged over 20 Myr |
| GalpropSigmaBulge |  | N | km / s | velocity dispersion of bulge |
| GalpropTmerger |  | N | Gyr | time since last merger |
| GalpropTmerger\_major |  | N | Gyr | time since last major merger |
| GalpropTsat |  | N | Gyr | time since galaxy became a satellite in this halo |
| GalpropVdisk |  | N | km / s | rotation velocity of disk |
| GalpropVel |  | N, 3 | km / s | x, y, and z components of velocity |
| GalpropZcold |  | N | Z☉ \* M☉ | metal mass in cold gas |
| GalpropZstar |  | N | Z☉ \* M☉ | metal mass in stars |

**Matches fields (Galprop):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GalpropSubfindIndex\_FP | int32 | N | -- | Subfind index in TNG FP simulation of bijective match |
| GalpropSubfindIndex\_DM | int32 | N | -- | Subfind index in TNG DMO simulation of bijective match |

**Haloprop Descriptions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Shape** | **Units** | **Description** |
| HalopropC\_nfw |  | N | -- | NFW concentration parameter for DM halo |
| HalopropHaloID |  | N | -- | Halo ID given by Consistent-Trees |
| HalopropIndex |  | N | -- | Index of halo in the file (recommended usage: when loading whole subvolumes) |
| HalopropIndex\_Snapshot |  | N | -- | Index of halo in file (recommended usage: when loading snapshots) |
| HalopropMaccdot\_metal |  | N | M☉ / Z☉ / yr | accretion rate of metals into the halo |
| HalopropMaccdot\_pristine |  | N | M☉ / yr | accretion rate of pristine gas into the halo |
| HalopropMaccdot\_radio |  | N | M☉ / yr | accretion rate onto the BH in radio mode |
| HalopropMaccdot\_reaccreate |  | N | M☉ / yr | accretion rate of “recycled” gas |
| HalopropMaccdot\_reaccreate\_metal |  | N | M☉ / Z☉ / yr | accretion rate of “recycled” metals |
| HalopropMass\_ejected |  | N | 109 M☉ | total gas mass in “ejected” reservoir |
| HalopropMcooldot |  | N | 109 M☉ / yr | rate of gas cooling/accretion from halo into ISM |
| HalopropMdot\_eject |  | N | M☉ / yr | rate of ejection of gas from halo |
| HalopropMdot\_eject\_metal |  | N | M☉ / Z☉ / yr | rate of ejection of metals from halo |
| HalopropMetal\_eject |  | N | Z☉ / yr | total mass of metals in “ejected” reservoir |
| HalopropMhot |  | N | 109 M☉ | mass of hot (CGM) gas in halo |
| HalopropMstar\_diffuse |  | N | 109 M☉ | mass of stars in a diffuse stellar halo (from disrupted satellites) |
| HalopropMvir |  | N | 109 M☉ | halo virial mass |
| HalopropRedshift |  | N | -- | redshift |
| HalopropRockstarHaloID |  | N | -- | Halo ID from the Rockstar run |
| HalopropRootHaloID |  | N | -- | Halo ID of the root halo for this merger tree |
| HalopropSnapNum |  | N | -- | snapshot file number |
| HalopropSpin |  | N | -- | spin of DM halo |
| HalopropZhot |  | N | 109 M☉ / Z☉ | metal mass in hot halo (CGM) |

**Matches fields (Haloprop):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| HalopropFoFIndex\_FP | int32 | N | -- | FoF index in TNG FP simulation of bijective match |
| HalopropFoFIndex\_DM | int32 | N | -- | FoF index in TNG DMO simulation of bijective match |